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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/506,752	09/03/2004	Yoshihiro Kato	09792909-5984	7054

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EXAMINER

NGUYEN, TRAM HOANG

ART UNIT PAPER NUMBER

2818

DATE MAILED: 06/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/506,752	Applicant(s) KATO ET AL.	
	Examiner Tram H. Nguyen	Art Unit 2818	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09/03/04.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 September 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>0904</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

The disclosure is objected to because of the following informalities:

In the specification, the phrase “., seconds” (on page 2, line 13) is not clear. Similar errors appear on page 11, lines 8, 21 and 24, page 12, line 8, page 14, line 29, page 22, line 28, page 24, line 24, page 25, lines 11-19, and page 26, lines 13-19.

The frequencies unit is missing on page 2, line 15.

Appropriate correction is required.

Drawings

The drawings are objected to for the following reasons.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: Figures 14-16 do not show the reference characters “A-A”, “30” described in page 18, line 14, and line 18, respectively of Applicant’s specification.

A proposed drawing correction or corrected drawings, showing changes in red ink, are required in reply to the Office Action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance. However, formal correction of the noted defect(s) can be deferred until the application is allowed by the examiner (see MPEP § 608.02v).

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 2 and 6 are rejected under 35 U.S.C. 102(e) as being anticipated by Spielberg et al. (hereinafter Spielberg) (US Pat 6,515,352 B1).

Regarding **claim 2**, Spielberg discloses a magnetic memory device comprising:

a memory element having a magnetic layer capable of being magnetized (figs. 4 or 5, memory elements 66 and 70, col. 5, line 63 – col. 6, line 22); and

a magnetic shield layer for magnetically shielding said memory element (figs. 4 or 5, shield layers 64 or 68),

wherein said memory element is characterized by being disposed avoiding an edge portion (figs. 4 or 5, edge portions around chip 10 not covered by 64 and 68) and a center portion of said magnetic shield layer (fig. 5, magnetic shield layers 64 and 68 avoiding the center area).

Regarding **claim 6**, Spielberg discloses a magnetic memory device, wherein said magnetic shield layer is disposed on the top and/or bottom of a package having by sealing said memory element therein, or/and on the upper portion and/or the lower portion of said memory element within said package (col. 5, line 12-16, fig. 4).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 3 – 5 and 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Spielberger in view of Bhattacharyya et al. (hereinafter Bhattacharyya) (US Pat 6,724,027 B2).

Regarding **claim 1**, Spielberger discloses a magnetic memory device comprising:
a memory element having a magnetic layer capable of being magnetized (figs. 4 or 5, memory elements 66 and 70, col. 5, line 63 – col. 6, line 22); and
a magnetic shield layer for magnetically shielding said memory element (figs. 4 or 5, shield layers 64 or 68),

wherein said memory element is characterized by being disposed avoiding an edge portion (figs. 4 or 5, edge portions around chip 10 not covered by 64 and 68) and a center portion of said magnetic shield layer (fig. 5, magnetic shield layers 64 and 68 avoiding the center area).

Although Spielberger did not clearly show the memory element having by laminating a magnetization pinned layer in which the orientation of magnetization is pinned and a magnetic layer in which the orientation of magnetization is changeable. However, this feature has been shown by Bhattacharyya (fig. 2a, memory element 120

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with pinned layer 124 and changeable layer 122). Therefore, it is considered obvious to one of ordinary skill in the art, at the time the invention was made, to include the memory element as shown by Bhattacharyya to the disclosure by Spielberger so that the memory elements can be protected from external adverse influences economically (Spielberger et al.: col. 2, lines 38 – 60).

Regarding **claim 3**, Spielberger and Bhattacharyya disclose the magnetic memory device according to claim 1 or 2, in which the shielding arrangement may take various forms (col. 3, lines 37 – 67), except the specific dimension wherein said memory element is disposed in a region between a position at 0.1 L inward from one side of said magnetic shield layer and a position at 0.15 L outward from the center of said magnetic shield layer toward one side thereof, where a length from one side of said magnetic shield layer to an opposed side thereof is L, according claim 3. However, it would have been an obvious matter of design variation to modify the shielding arrangement as disclosed by Spielberger to have the specific shape as disclosed in claim 3 since such modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955).

Regarding **claim 4**, Spielberger and Bhattacharyya disclose the magnetic memory device according to claim 1 or 2, in which the shielding arrangement may take various forms (col. 3, lines 37 – 67), except the specific dimension wherein said memory element is disposed in a region between a position at 0.2 L inward from one side of said magnetic shield layer and a position at 0.15 L outward from the center of said magnetic

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shield layer toward one side thereof, where said magnetic shield layer is provided on both sides of said memory element, and a distance between said magnetic shield layers, a length from said one side of said magnetic shield layer to the opposed side thereof, and an external magnetic field to be applied are constant respectively. However, it would have been an obvious matter of design variation to modify the shielding arrangement as disclosed by Spielberger to have the specific shape as disclosed in claim 3 since such modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955).

Regarding **claim 5**, Spielberger and Bhattacharyya disclose the magnetic memory device according to claim 1 or 2, in which the shielding arrangement may take various forms (col. 3, lines 37 – 67), except the specific dimension wherein said memory element is disposed in a region between a position at 0.1 L inward from said one side thereof and a position at 0.2 L outward from the center of the shield layer toward said one side thereof, where a distance between said magnetic shield layers, a thickness of said magnetic shield layers, and an external magnetic field to be applied are constant respectively. However, it would have been an obvious matter of design variation to modify the shielding arrangement as disclosed by Spielberger to have the specific shape as disclosed in claim 3 since such modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955).

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Regarding to **claim 7**, Bhattacharyya discloses the memory device, wherein said memory element is present almost allover said package (col. 4, lines 26 – 29).

Regarding to **claim 8**, Bhattacharyya discloses the memory device, wherein said magnetic shield layer is in variations in the shape (col. 4, lines 6– 10).

Regarding to **claim 9**, Bhattacharyya discloses the claimed invention (col. 5, lines 50 – 53) except for saturation magnetism at 1.8 telsa or more. It would have been obvious to one having ordinary skill in the art at the time the invention was made to saturation magnetism at 1.8 telsa or more, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272,205 USPQ215 (CCPA 1980).

Regarding to **claim 10**, Bhattacharyya discloses a memory device, wherein said memory device is constructed such that an insulating material layer or a conductive material layer is sandwiched between said magnetization pinned layer and said magnetic layer, that with a magnetic field induced by passing a respective current through wirings provided on the top and the bottom of said memory element, the orientation of magnetization in said magnetic layer is aligned in a prescribed direction thereby writing information thereto, and that said written information is read out by use of the tunnel magnetoresistance effect between said wirings (col. 3, lines 1 – 45).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tram Hoang Nguyen whose telephone number is (571)


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272-5527. The examiner can normally be reached on Mon – Fri from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on (571) 272-5526. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from Patent Application Information Retrieval (PAIR) system. Status information for unpublished applications is available through private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TN


David Nelms
Supervisory Patent Examiner
Technology Center 2800

Tram Hoang Nguyen

Examiner

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